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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,736	02/18/2004	Chen Lung Kuo	08954.0014	2073

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EXAMINER	
CHEN, WEN YING PATTY	
ART UNIT	**PAPER NUMBER**
2871	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/779,736	KUO, CHEN LUNG	
	Examiner	Art Unit	
	W. Patty Chen	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-24,27-36,38,39,41 and 42* is/are pending in the application.

4a) Of the above claim(s) *27-32* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-24,33-36,38,39,41 and 42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Jun. 21, 2007 has been entered.

Claims 21-24, 27-36, 38, 38, 41 and 42 remain pending in the current application, however, claims 27-32 are withdrawn from consideration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 21, 23, 33, 35, 38-39 and 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (US 2002/0075443) in view of Sawasaki et al. (US 2001/0026347) further in view of Kishimoto et al. (US 6721024).

With respect to claims 21, 33 and 38-39: Shimizu et al. disclose in Figure 6 a liquid crystal display panel, comprising:

a first substrate (element 100B) having a plurality of first areas (region where element 1b is formed) and a plurality of second areas (region where element 1c is formed), wherein a surface of the first substrate has the same height in the first areas and in the second areas;

a second substrate (element 100A) having a plurality of first areas (region where element 104 is formed) and a plurality of second areas (region wherein element 104 is not formed), wherein the first areas and the second areas are on a side of the second substrate facing the first substrate, and a surface of the second substrate is higher in the first areas than in the second areas, and the second areas of the second substrate correspond to the second areas of the first substrate;

a liquid crystal layer (element 9) sandwiched between the first substrate and the second substrate;

a plurality of first protrusions (element 1b) disposed on the first areas of the first substrate and substantially contacting the first areas of the second substrate for maintaining a first cell gap between the first and second substrates (Paragraph 0085); and

a plurality of second protrusions (element 1c) disposed on the second areas of the first substrate, tops of the second protrusions being separated from the second areas of the second substrate by a predetermined distance (as shown in the figure) in such a manner that the second

protrusions contact the second areas of the second substrate when the liquid crystal display panel is subjected to an external force to maintain a second cell gap between the first and second substrates, the second cell gap being smaller than the first cell gap (Paragraph 0085).

Shimizu et al. failed to disclose that a plurality of third protrusions are disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer and that the first and second protrusions are made of a first material and the third protrusions are made of a second material, the first material being harder than the second material.

However, Sawasaki et al. disclose in Figure 48 a liquid crystal display device comprising a plurality of third protrusions (element 246a) in addition to a plurality of first protrusions and a plurality of second protrusions, disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer. Although Sawasaki et al. further disclose in Paragraphs 0227-0228 that the first and second protrusions are formed so to act as rigid supports for the substrates and as shown in Figure 48, that the first and second projections 247 appear to be made of a different material as the third projections 246a (as shown by the different direction of the slashed lines), nonetheless, Sawasaki et al. failed to specifically disclose that the first and second projections are made of a different material than the third projection. On the other hand, Kishimoto et al. disclose in Column 12 lines 11-37 that cell-gap maintaining spacers (Figure 1, element 20) are formed of different materials than the orientating-inducing projections (Figure 1, element 16) and that the spacers should be formed with appropriate hardness so that a sufficient strength is provided (Column 6, lines 31-33).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Shimizu et al.

wherein a plurality of third protrusions being disposed on at least one of the first and second substrates for regulating orientation of the liquid crystal layer as taught by Sawasaki et al., since Sawasaki et al. teach that by forming a plurality of third protrusions helps in providing a multi-domain display device, thereby, obtaining good display quality (Paragraphs 0016-0017) and to form the first and second protrusions of a material harder than the third protrusion material as taught by Kishimoto et al., so as to provide reliable support for maintaining the cell gaps.

As to claims 23 and 35: Shimizu et al. further disclose in Paragraph 0085 that the first protrusions and the second protrusions have the same height.

As to claims 41 and 42: Shimizu et al. further disclose in Figure 6 that the first substrate (element 100B) has a plurality of light-shielding matrices (element 3), the first and second protrusions (elements 1b and 1c) being disposed on the light-shielding matrices (more clearly shown in Figure 8).

Claims 22, 24, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (US 2002/0075443), Sawasaki et al. (US 2001/0026347) and Kishimoto et al. (US 6721024) in view of Miyachi et al. (US 6211937).

With respect to claims 22 and 34: Shimizu et al., Sawasaki et al. and Kishimoto et al. disclose all of the limitations set forth in the previous claims and Shimizu et al. further disclose in Paragraph 0085 that the first substrate is a color filter substrate and the second substrate is a thin film transistor substrate; the liquid crystal display panel further comprising thin film transistor (TFT) devices on the second substrate.

Shimizu et al. failed to specifically disclose that the TFT devices are formed in the first areas of the second substrate wherein the first protrusions contact the TFT devices.

However, Miyachi et al. disclose in Figure 5 a liquid crystal display device comprising of TFT devices (element 1) wherein protrusions (element 5) are formed in locations contacting the TFT devices (Column 7, lines 55-56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to construct a liquid crystal display device as taught by Shimizu et al., Sawasaki et al. and Kishimoto et al. wherein the first protrusions are formed in contact with the TFT devices as taught by Miyachi et al., since Miyachi et al. teach that by forming the protrusions on the TFT devices minimizes the effect of lowering the aperture ratio thus preventing a degradation of the display quality (Column 8, lines 33-39).

As to claims 24 and 36: Miyachi et al. further disclose in Column 8 line 3 that the TFT devices have a thickness of 1.6μm, therefore, when the first protrusions are formed contacting the TFT devices, the distance between the second protrusions with respect to the second substrate will then be 1.6μm, which is in the range of 1.0μm to 2.0μm.

Response to Arguments

Applicant's arguments with respect to all claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. Patty Chen whose telephone number is (571)272-8444. The examiner can normally be reached on 8:00-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Nelms can be reached on (571)272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W. Patty Chen
Examiner
Art Unit 2871

WPC
8/31/07

ANDREW SCHECHTER
PRIMARY EXAMINER